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| 09/787,890 | 03/26/2001 | Hidetatsu Murakami | Y&A-123 | 9915 |

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EXAMINER

TESKIN, FRED M

ART UNIT PAPER NUMBER

1713

DATE MAILED: 09/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/787,890

Applicant(s)
Murakami, et al.

Examiner
Fred Teskin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three (3) MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 7-10, and 17-42 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-10, and 17-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

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1. The preliminary and second preliminary amendments of March 26 and May 14, 2000 have been entered in full. Claims 1-4, 7-10 and 17-42 are currently pending and under examination.

2. Receipt is acknowledged of papers submitted under 35 U.S.C. § 371, which papers have been placed of record in the file.

3. The references cited in the Search Report of 14 November 2000 have been considered, but will not be listed on any patent resulting from this application because they were not provided on a separate list in compliance with 37 CFR 1.98(a)(1). In order to have the references printed on such resulting patent, a separate listing, preferably on a PTO-1449 form, must be filed within the set period for reply to this Office action.

4. The use of the trademark Decalin has been noted throughout this application (see, e.g., page 3, third full paragraph and page 7, line 6). It should be capitalized wherever it appears and be accompanied by accepted generic terminology (e.g., decahydronaphthalene, as per the submission from Hackh's Chem. Dict., p. 199).

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be

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respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

5. The disclosure is objected to because of the following informalities: at page 1, first paragraph, the term "co[n]jugated" is misspelled. Appropriate correction of the specification is required.

6. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicants' cooperation is requested in correcting any errors of which applicants may become aware in the specification.

7. Claims 1-4, 7-9 and 17-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 2, 7 and 8 contain the trademark "decalin". Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 USC 112/2d. *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly

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to identify any particular material or product. A trademark or trade name is used to identify a source of goods, not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated therewith. In the present case, the trademark is used to identify/describe a source of the medium for measuring intrinsic viscosity and, accordingly, the identification/description is indefinite.

8. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 3, 4, 17, 19, 21 and 37 are rejected under 35 U.S.C. § 103(a) as unpatentable over US 5698651 to Kawasaki et al ("Kawasaki").

Kawasaki demonstrates the preparation of ethylene copolymer rubber comprising structural units originated from monomers corresponding to applicants' monomers (A1) and (A2) and formula (1-

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1) and which meet the limitations of claim 1 as to intrinsic viscosity and Tg; see Examples 1-4 in Tables 2 and 3 (cols. 57-58) and Examples 6-8 in cols. 58-60. Since the ethylene copolymer rubber of the Kawasaki invention is said to be a "random copolymer rubber" (col. 2, lines 55-56), each of these inventive examples is considered to implicitly meet the "random" structural limitation of the claims. Further, each of the cited examples describes a ratio of ethylene units to units of propylene or 1-octene which meets the corresponding parameter specified in claims 19 and 21 (see, e.g., col. 55, lines 60-61).

Kawasaki differs from the claimed subject matter in that the working examples do not report the mole percent of structural units originated from the alpha-olefins and from the non-conjugated cyclic polyenes (ENB and VNB; see col. 55, lines 22-23) and the exemplified copolymers have an iodine value below the minimum value in claim 1.

However, as to amount of structural units from the alpha-olefin and the non-conjugated cyclic polyene, Kawasaki generically teaches mole percent ranges which substantially overlap the claimed ranges for structural units originated from (A1) and (A2); i.e., 90 to 40 mol % of units from ethylene, 10 to 60 mol % of units from alpha-olefin and 0.1 to 10 mol %, preferably 0.2 to 8 mol %, of units from the non-conjugated cyclic polyene (col. 8, lines 14-20

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and 21-26). The iodine value of the copolymer rubber also is defined by a range whose upper value coincides with the lower endpoint of the claimed range (i.e., 0.5 to 50; *id.*, lines 62-63). Iodine value is generally recognized in the art as a measurement of residual unsaturation. Indeed Kawasaki relates an iodine value within the above range to a high vulcanization rate and high-speed vulcanization (*id.*, lines 65-67).

Given the substantial overlap in structural unit concentration ranges, it would have been obvious to one of ordinary skill in the art to modify Kawasaki by copolymerizing the non-conjugated cyclic polyene and alpha-olefin(s) in amounts so as to provide an ethylene copolymer rubber containing corresponding structural units within the claimed range. Further, one so skilled would have expected the inclusion of structural units originated from the non-conjugated cyclic polyene in an amount within claim 1, e.g., 7 to 10 mol %, to cause an elevation in iodine value up to 50, since it is these units that contain the residual ethylenic unsaturation reflected in the iodine value (*cf.*, col. 6, lines 27-31). Thus the higher iodine value would be expected to afford benefits in terms of higher vulcanization rate, owing to the increase in number of unsaturated sites available for crosslinking reactions.

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10. Claims 2, 7-10, 18, 20, 22, 27-32 and 38 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawasaki.

The essential difference between Kawasaki and claims 2 and 8 (and claims dependent thereon) resides in the type of non-conjugated polyene-originated units present in the copolymer: the Kawasaki working examples provide copolymer containing cyclic polyene-originated (vinyl norbornene) units whereas said claims call for structural units originated from a non-conjugated linear polyene.

However, given the explicit teaching in Kawasaki of the interchangeability of 5-alkenyl-2-norbornenes and alpha,omega-dienes such as 1,7-octadiene and 1,8-nonadiene (see col. 7 lines 35-44), one would have reasonably expected a copolymer containing an equivalent amount of structural units originated from such a non-conjugated linear diene to display properties commensurate with those of the aforementioned working examples. Therefore, absent probative evidence to the contrary, modification of the specific embodiments of Kawasaki through use of an alpha, omega-diene in lieu of vinyl norbornene to make the described copolymer rubber is considered to have been obvious to one of ordinary skill in the art at the time of applicants' invention.

As to claims 7, 8 and 28-32: It would have been obvious to arrive at the claimed composition by blending the random copolymer

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rubber of Kawasaki with a diene-based rubber since (1) Kawasaki generally teaches blending the rubber composition of his invention with other known rubbers including conjugated diene-type rubbers (col. 52, lines 1-9); and (2) those of ordinary skill would have been expected to optimally select the relative proportions of copolymer and rubber in view of the intended utility of the ultimate composition.

As to claim 38, examiner construes this claim as readable on material wherein the recited copolymer serves as the "rubber material," and does not consider the statement of intended utility ("for tires") to distinguish the claimed material in any unobvious respect over the rubber composition of Kawasaki.

11. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure.

Sagane et al is cited to show analogous art relating to an ethylene/alpha-olefin/non-conjugated polyene random copolymer (note col. 4, lines 61 et seq.).


12. Claims 23-26, 33-36 and 39-42 would be allowable if amended or rewritten to overcome the rejection under 35 U.S.C. § 112 set forth in this Office action and to include all the limitations of the base claim and any intervening claim.

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13. Any inquiry concerning this communication should be directed to Examiner F. M. Teskin whose telephone number is (703) 308-2456.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (703) 308-2450. The appropriate fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 (non-after finals) and (703) 872-9311 (after-finals).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.


FRED TESKIN
PRIMARY EXAMINER
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FMTeskin/09-17-03